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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 09/398,502 | 09/17/1999 | HABIB RIAZI | 3-11-3 | 1176 |

7590 11/06/2003

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| EXAMINER | |
|---|---|
| DUONG, DUC T | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2663 | 10 |

DATE MAILED: 11/06/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 09/398,502 | RIAZI ET AL. | |
| | Examiner | Art Unit | |
| | Duc T. Duong | 2663 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *04 February 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *5* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

2. Claims 1-4, 6-10, 12-15, 17-20, and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Beale et al (U.S. Patent 5,825,241).

Regarding to claims 1 and 7, Beale discloses an orthogonal frequency division multiplexing OFDM transmitter 12 (Fig. 1) for transmitting an OFDM signal comprising a differential encoder for modulating said OFDM signal in the frequency domain using adjacent sub-carriers (col. 5 lines 51-62) and a transformer for creating said OFDM signal (col. 4 lines 46-62).

Regarding to claims 2 and 8, Beale discloses transformer implements a Fast Fourier Transform (col. 4 lines 46-62).

Regarding to claims 3 and 9, it is inherent in OFDM system transformer implements an orthogonal transformation.

Regarding to claims 4 and 10, Beale discloses transformer generates said OFDM signal with plurality of sub-carriers for carrying data (col. 5 lines 62-67 and col. 6 lines 1-5).

Regarding to claims 6 and 12, Beale discloses differential encoding is performed with respect to consecutive sub-carriers in said OFDM signal (col. 4 lines 46-54).

Regarding to claims 13 and 18, Beale discloses an orthogonal frequency division multiplexing OFDM receiver (Fig. 1) for receiving an OFDM signal comprising a transformer 30 for recovering said OFDM signal having a plurality of sub-carriers (col. 7 lines 1-15) and a differential decoder 32 for demodulating said OFDM signal in the frequency domain wherein said differential decoding is performed using adjacent sub-carriers (col. 7 lines 15-67).

Regarding to claims 14 and 19, the rejection is similar with respect to claims 2 and 8.

Regarding to claims 15 and 20, the rejection is similar with respect to claims 3 and 9.

Regarding to claims 17 and 22, the rejection is similar with respect to claims 6 and 12.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 5, 11, 16, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beale in view of Sonnenschein et al (U.S. Patent 6,130,859).

Regarding to claims 5, 11, 16, and 21, Beale discloses all the limitations with respect to claims 1 and 7 includes a null symbol as a reference symbol. Seki fails to teach for at least one unmodulated sub-carrier generated by said transforming step is allocated as a pilot bin to provide a reference within each OFDM symbol. However, Sonnenschein discloses for an OFDM transmitter and receiver for transmitting and recovering at least one unmodulated carrier (col. 4 lines 44-55). Thus, it would have been obvious to one of ordinary skilled in the art, at the time of the invention, to arrange the transmitter and receiver as taught by Sonnenschein in Beale's system with the motivation for adjusting the frequency shift of signal.

***Conclusion***

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Duc T. Duong whose telephone number is 703-605-5146. The examiner can normally be reached on M-Th (8:30 AM-5:30 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chau T. Nguyen can be reached on 703-308-5340. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular communications and 703-872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-9600.

DD
October 29, 2003

STEVEN H.D NGUYEN
PRIMARY EXAMINER